

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re app. of:	Markus Dierker et al.	Examiner:	Brian M. Gullledge
App. No.:	10/553,182	Conf. No.:	2215
		Group Art Unit:	1619
Filed:	July 21, 2006	Docket No.:	C 2647 PCT/US (P40048 USA)
For:	Poly- $\alpha$ -Olefin-Containing Cosmetic Composition		

**DECLARATION OF MARKUS DIERKER UNDER 37 C.F.R. 1.132**

I, Markus Dierker, declare and state that:

1. I am a co-inventor of this invention. I am currently employed by Cognis GmbH as a senior technology manager. I have held this position for about eight years. I have a diploma degree (1997) in chemistry from the University of Muenster, Germany, and a Ph.D. degree (2001) in chemistry from the same university. I have extensive experience with cosmetic compositions containing poly- $\alpha$ -olefins and related hydrocarbon mixtures. I also have extensive experience with the dehydrating polymerization process.

2. I am aware of U.S. Patent Application Serial No. 10/553,182 and have reviewed the claims currently pending therein. I understand that claims 12-14 and 16-33 of this application have been rejected as allegedly being anticipated by Collin (US 6,464,967; "Collin"), and claim 15 has been rejected as allegedly being obvious in view Collin et al. (US 6,641,821; "Collin et al."). I have reviewed these publications and the compositions disclosed therein.

3. The Examiner has stated that he does not agree with applicants' arguments that the hydrocarbon mixture as prepared by the claimed dehydrating polymerization process using primary alcohols as starting monomers, would be

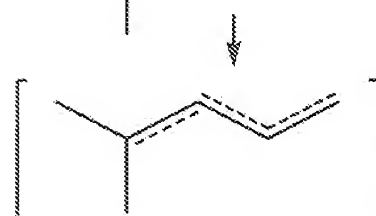
materially different from the poly- $\alpha$ -olefins recited by either Collin or Collin et al., which are prepared by the art-standard polymerization of 1-alkenes as starting monomers.

4. As a co-inventor of the present invention, and one skilled in the art, I attest to the following facts. The art-standard process of polymerizing alpha-olefins produces a mixture of hydrocarbon oligomers. This process uses alpha-olefins (1-alkenes) as monomers. In contrast, the presently claimed dehydrating polymerization process uses primary alcohols of three distinct structural types as monomers: unsaturated monofunctional alcohols, branched monofunctional alcohols and difunctional alcohols. Under the dehydrating polymerization reaction conditions an isomeric mixture of at least olefin-like intermediates is produced which further reacts to oligomerize/polymerize. The olefin-like intermediates are an isomeric mixture wherein the double bond, or nascent double bond, reacts as though it were in the 1,2-; 2,3-; 3,4-; etc. positions. That is, a mixture of isomeric olefin-like intermediates is produced, which further reacts to form a complex mixture of hydrocarbon oligomers/polymers. An attempt to visualize exemplary monomer structures and their corresponding reactive intermediates is presented in Chart I.

## CHART I

### EXAMPLES OF THREE POSSIBLE MONOMERS OF CLAIMED PROCESS

#### EXAMPLE OF PRIOR ART MONOMER



A person of ordinary skill in the art at the time of the invention would not expect that such a complex mixture of intermediates as obtained from 1, 2 or 3, above, would produce a hydrocarbon mixture which would be the same as that produced by the art-standard process of polymerizing pure 1-alkenes (alpha-olefins). In other words, the product of applicants' dehydrating polymerization process would be materially different from the poly- $\alpha$ -olefins of the prior art.

5. Because such hydrocarbon mixtures prepared by the dehydrating polymerization process are difficult to characterize by classical physical methods, the best method for their characterization, and the best means for distinguishing them from the art-standard poly- $\alpha$ -olefins, is via the physical properties of the cosmetic compositions prepared therefrom. The relevant data are reported in the specification as originally filed, in Table 1, page 22.

Table 1 shows the viscosity and storage stability tests for emulsions, comparing Nexbase® 2006 FG (art-standard poly- $\alpha$ -olefin, hydrogenated poly-1-decene) or thinly liquid paraffin versus hydrogenated isononyl oligomer of the present invention as the oil component. In contrast to the emulsion according to the invention, the comparison emulsions had separated after about 1 week under these conditions. Further, the viscosity of the comparison emulsions degraded dramatically after only one week, whereas the emulsion of the invention was essentially stable through 12 weeks.

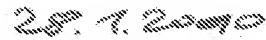
6. The difference in the stability and viscosity properties of the cosmetic emulsions prepared from the art-standard poly- $\alpha$ -olefins and the hydrocarbon mixtures of the invention, as demonstrated in Table 1 of the original specification (page 22), reflect a fundamental difference in the oil components themselves, since that is the only difference in the emulsion formulations. One skilled in the art would expect that the hydrocarbon mixture of the present invention would have a broader range of different hydrocarbon structures, and a greater diversity of isomeric species, which follows from the nature of the intermediates generated during the dehydration polymerization process (point 4, above), when compared with the art-standard poly- $\alpha$ -olefins. Thus, the hydrocarbon mixtures of the present invention are different from the art-standard poly- $\alpha$ -olefins, even if prepared from analogous monomers (e.g., 1-decene versus 1-decanol, or 3-methyl-1-decene versus 3-methyl-1-decanol).

7. Since the compounds are different, the art-standard poly- $\alpha$ -olefins do not anticipate or suggest the hydrocarbon mixtures of the present process.

8. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true, and further that the statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Markus Dierker



Date